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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,674	09/30/2004	Chiu-Shun Lin	13689-US-PA	5673

31561 7590 04/07/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
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TAIWAN

EXAMINER

MANDALA, VICTOR A

ART UNIT PAPER NUMBER

2826

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,674

Applicant(s)

LIN ET AL.

Examiner

Victor A. Mandala Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 8-14, & 17-28 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0166661 Lei.

1. Referring to claim 1, a bonding pad, (Figure 1F #12), for disposing on a chip, (Figure 1F #10), comprising: a body, (Figure 1F #12), having a first surface and a corresponding second surface, wherein the body, (Figure 1F #12), is disposed on the chip, (Figure 1F #10), and the second surface of the body, (Figure 1F #12), is in contact with the chip, (Figure 1F #10); and at least one first protruding, (Figure 1F #16A), portion disposed on the first surface at the corner regions of the body, (Figure 1F #12).
2. Referring to claim 2, a bonding pad, further comprising a second protruding portion, (Figure 1F #16B), disposed on the first surface in the central region of the body, (Figure 1F #12).
3. Referring to claim 3, a bonding pad, wherein the second protruding portion, (Figure 1F #16B), is connected to the first protruding portion, (Figure 1F #16A).
4. Referring to claim 4, a bonding pad, wherein the shape of the second protruding portion, (Figure 1F #16B), when viewed from the top against the first surface is selected

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from the group consisting of a cross-line shape, a circular shape, a circular ring shape, an ellipse shape, an ellipse ring shape, a polygonal shape, a polygonal ring shape, **a linear shape, a geometrical shape** and combinations thereof.

5. Referring to claim 5, a bonding pad, wherein the shape of the second protruding portion, (Figure 1F #16B), when viewed from the top against the first surface is selected from the group consisting of a cross-line shape, a circular shape, a circular ring shape, an ellipse shape, an ellipse ring shape, a polygonal shape, a polygonal ring shape, **a linear shape, a geometrical shape** and combinations thereof.

6. Referring to claim 8, a bonding pad, wherein the material constituting the bonding pad, (Figure 1F #12), comprises aluminum, (Paragraph 0015 Lines 9-10).

7. Referring to claim 9, a bonding pad, (Figure 1F #12), wherein the body has a four-sided geometric shape.

8. Referring to claim 10, a chip structure, comprising: a chip, (Figure 1F #10), having an active surface; at least one bonding pad, (Figure 1F #12), disposed on the active surface of the chip, (Figure 1F #10), the bonding pad including: a body, (Figure 1F #12), having a first surface and a corresponding second surface, wherein the body, (Figure 1F #12), is disposed on the chip, (Figure 1F #10), and the second surface of the body, (Figure 1F #12), is in contact with the chip, (Figure 1F #10); and at least one first protruding portion, (Figure 1F #16A), disposed on the first surface at the corner regions of the body, (Figure 1F #12).

9. Referring to claim 11, a chip structure, wherein the bonding pad, (Figure 1F #12), further comprises a second protruding portion, (Figure 1F #16B), disposed on the first surface in the central region of the body, (Figure 1F #12).

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10. Referring to claim 12, a chip structure, wherein the second protruding portion, (Figure 1F #16B), is connected to the first protruding portion, (Figure 1F #16A).

11. Referring to claim 13, a chip structure, wherein the shape of the second protruding portion, (Figure 1F #16B), when viewed from the top against the first surface is selected from the group consisting of a cross-line shape, a circular shape, a circular ring shape, an ellipse shape, an ellipse ring shape, a polygonal shape, a polygonal ring shape, **a linear shape, a geometrical shape** and combinations thereof.

12. Referring to claim 14, a chip structure, wherein the shape of the second protruding portion, (Figure 1F #16B), when viewed from the top against the first surface is selected from the group consisting of a cross-line shape, a circular shape, a circular ring shape, an ellipse shape, an ellipse ring shape, a polygonal shape, a polygonal ring shape, **a linear shape, a geometrical shape** and combinations thereof.

13. Referring to claim 17, a chip structure, wherein the material constituting the bonding pad, (Figure 1F #12), comprises aluminum, (Paragraph 0015 Lines 9-10).

14. Referring to claim 18, a chip structure, wherein the body, (Figure 1F #12), has a four-sided geometric shape.

15. Referring to claim 19, a chip structure, further comprising a passivation layer, (Figure 1F #14), disposed on the active surface of the chip, (Figure 1F #10), that also covers the peripheral region of the bonding pad, (Figure 1F #12), but leaves the central region of the bonding pad, (Figure 1F #12), exposed.

16. Referring to claim 20, a chip structure, further comprising at least a bump, (Figure 1F #22), disposed on and electrically connected with the bonding pad, (Figure 1F #12).

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17. Referring to claim 21, a pad for disposing on a chip, comprising: a body, (Figure 1F #12); and at least one first protruding portion, (Figure 1F #16A), disposed on corner regions of the body, (Figure 1F #12).

18. Referring to claim 22, a pad, further comprising a second protruding portion, (Figure 1F #16B), disposed on central region of the body, (Figure 1F #12).

19. Referring to claim 23, a display apparatus, (Paragraph 0004 Line 1), comprising a device, which includes the pad, (Figure 1F #12), of claim 21.

20. Referring to claim 24, a display apparatus, wherein the pad, (Figure 1F #12), further comprises a second protruding portion, (Figure 1F #16B), disposed on central region of the body, (Figure 1F #12).

21. Referring to claim 25, a display apparatus, wherein the second protruding portion, (Figure 1F #16B), is connected to the first protruding portion, (Figure 1F #16A).

22. Referring to claim 26, a device comprising the pad, (Figure 1F #12), of claim 21.

23. Referring to claim 27, a device, wherein the pad, (Figure 1F #12), further comprises a second protruding portion, (Figure 1F #16B), disposed on central region of the body, (Figure 1F #12).

24. Referring to claim 28, a device, wherein the second protruding portion, (Figure 1F #16B), is connected to the first protruding portion, (Figure 1F #16A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 6, 7, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0166661 Lei.

25. Referring to claim 6, a bonding pad, wherein the body, (Figure 1F #12), the first protruding portion, (Figure 1F #16A), and the second protruding portion, (Figure 1F #16B), are formed together as single unit, (See ** below).

26. Referring to claim 7, a bonding pad, wherein the body, (Figure 1F #12), and the first protruding portion, (Figure 1F #16A), are formed together as a single unit, (See **).

27. Referring to claims 15 and 16, a chip structure, wherein the bonding pad, (Figure 1F #12), is a single unit, (See ** below).

**** Initially, it is noted that the 35 U.S.C. § 103 rejection based on a bonding pad and protruding portions as a single unit deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.**

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Therefore, it would have been obvious to one of ordinary skill in the art to use the bonding pad and the protruding portions as a single unit as "merely a matter of obvious engineering choice" as set forth in the above case law.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A. Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

VAMJ
4/2/05